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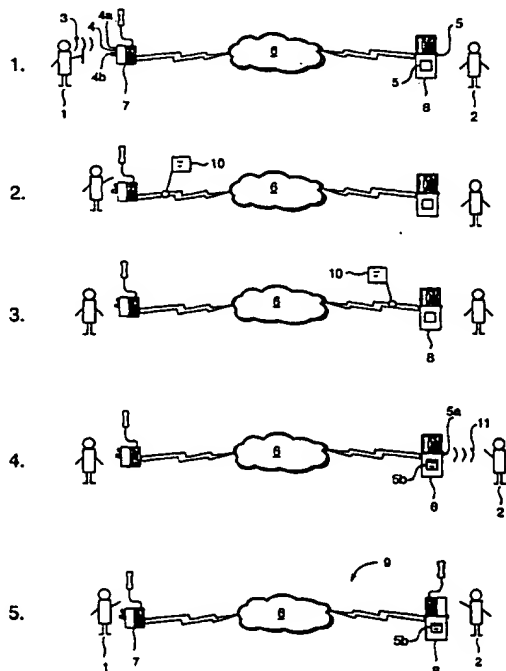
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(54) Method, apparatus and communication system for setting up a communication session

(57) The present invention provides a method, an apparatus, and a communication system for setting up a communication session. More particularly, a telephone call between a calling person and a called person is set up by using a call-related information which has been determined by the calling person and is related to the calling person or the subject of the session. The call-related information is transmitted to the called person and output there by use of an output unit, while alerting the called person that a call is incoming.

Fig. 1



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Description**TECHNICAL FIELD**

[0001] The present invention is related to a method, an apparatus, and a communication system for setting up a communication session. More particularly, the invention relates to a telephone or conference connection and allows the participating users a sophisticated identification

BACKGROUND OF THE INVENTION

[0002] The development in the field of communication built new standards in the last couple of years. For example, the analog telephone technology switched to a digital technology that opens new fields and possibilities. Single media types, e.g. text, speech, data-files, or even video, are meeting more and more together through new multimedia technologies and create new interesting applications.

[0003] When using an e-mail for communication, the subject line is an important feature to both the sender and the receiver of the e-mail message. With the information contained in this field the sender usually tries to draw the attention of the recipient to the purposes of the message. On the other hand the receiver of an e-mail message can use the content of this field to evaluate the importance of the message and to decide whether to read it immediately or later.

[0004] With current telephone systems, there is however no feature available that is equivalent to the e-mail subject line. What can be at most sent to the called party is the telephone number of the calling party. Then at the destination that number can be shown to the called party, if the respective telephone set has a display, thus telling him/her who is calling and helping him/her to decide whether he/she should answer the call. For example, a calling line identification that is the number of the calling party's telephone is sent in the integrated service digital network (ISDN) in the out-of-band D-channel that is used for call control signaling.

[0005] In some systems, the calling party's number is also used to select the ringing tones or to retrieve the name and/or photo of the calling person, as disclosed in US Patent 4,899,358.

[0006] Exploiting the calling party's number as described above has two weaknesses:

[0007] The information content of the calling party's number is limited. It only tells the called party who is calling; it is not possible for example to tell him the reasons or purposes of the call.

[0008] In some cases the information "who is calling" may be misleading, since the calling party's number is provided by the system itself, and not by the actual calling person. If Jane is using Bob's phone to call Joe, her call will be displayed at Joe's phone set as a call from Bob.

[0009] US Patent 5,821,874 is related to a messaging terminal with voice notification. A method for receiving and processing an incoming message in a wireless messaging terminal is disclosed.

[0010] In US Patent 5,276,731 is described a method and apparatus for handling incoming telephone calls. The method can be used for delivering predetermined messages to predetermined calling parties or predetermined, prioritized screening of incoming telephone calls, and for rerouting incoming telephone calls the basis of predetermined selection criteria.

[0011] An emergency phone messaging system is disclosed in US Patent 5,710,803. This system is provided for automatically dialing and sending out a pre-recorded message in emergency situations to Police, Fire, or Ambulance departments at the push of a single button.

[0012] US Patent 5,481,594 describes an audio caller identification unit which is connected between a user's telephone and a telephone exchange providing calling party identification, such as calling number or name.

[0013] In the following, two standards, H.323 and Q.931, are addressed.

[0014] H.323 is a multimedia teleconferencing standard and was originally developed as an adaptation of H.320, which addresses videoconferencing over ISDN and other circuit switched networks and services. Since H.320 was ratified, in 1990, corporations have increasingly implemented Local Area Networks (LANs) and LAN gateways to the Wide Area Network (WAN). H.323 has evolved beyond a logical and necessary extension of the H.320 standard to include Corporate Intranets and packet-switched networks generally. H.323 utilizes the Real-Time Protocol (RTP/RTCP) from the IETF (Internet Engineering Task Force), along with internationally standardized codecs. With the ratification of version 2, H.323 is also being used for video and other communications, over the Internet. In common with the other ITU multimedia teleconferencing standard, H.323 applies to multipoint and point-to-point sessions. More details about H.323 can be found in: ITU-T, "Recommendation H.323 (02/98) - Packet-based multimedia communications systems", Geneva, February 1998.

[0015] Q.931 is an Integrated Service Digital Network (ISDN) specification that has been designed for control signaling and thus is only used on the D channel. It is used to establish maintain and release connections on B channels. It is a protocol between the user and the network. More details about Q.931 can be found in: ITU-T, "Recommendation Q.931 (03/93) - Digital Subscriber Signalling System No. 1 (DSS 1) - ISDN user-network interface layer 3 specification for basic call control", Geneva, March 1993.

SUMMARY OF THE INVENTION

[0016] It is an object of the invention according to claim 1 to provide a method which allows the initiator of a phone call to attach to his/her call a "subject" object. At the called party's side the subject object can then be "rendered", thus giving to the called party more information about the reasons or purposes of the call.

[0017] The present invention relates generally to a communication session, more specifically, to the set up of a telephone call between a calling party and a called party. Hence, a call-related information that is determined from the calling party is transmitted to the called party and identifies the calling party or the purpose of the call. With the word session are meant all activities which take place during the establishment, maintenance, and release of a call. According to the invention at least two persons participate on a session. Furthermore, such a session can be a text chat call that usually takes place via the Internet.

[0018] The "subject" object attached to a phone call may be of any kind, e.g. a line of text, an audio file, an video file, a bitmap, a photo or image, an animation, some means of identity proof, etc. It may be also a combination of multiple objects, e.g. a line of text and the corresponding audio file. The calling party either creates such an object or selects it for example from a repository.

[0019] There are two methods of how the "subject" object can be transferred to a destination:

1. The "subject" object itself and its type is encoded within a signaling message which is sent from the calling to the called party during the call setup phase. For example, in Q.931-based signaling system like ISDN or H.323, the signaling message in question may be the SETUP message; in the session initiation protocol (SIP) the "subject" would be sent in the INVITE message. The MIME (Multipart Internet Mail Extension) encoding scheme used in e-mail systems for file attachment can be used to encode the object. At the destination side, the "subject" object is then "displayed" or "rendered" to the called party at call offering time. For a wider range of applications some standards should be extended.

2. Only a reference to the "subject" object, e.g. its URL (Uniform Resource Locator), is sent within the signaling message mentioned in method 1 above. Upon receiving the signaling message containing the URL, the destination endsystem will download the encoded object from the location indicated by the URL and "render" it to the called user at call offering time. This second method is interesting in case the size of the encoded object is too large for being included into the signaling message.

[0020] The following can be achieved with a "subject" object attached to a phone call: indication of who is calling (via text, audio/video clip, photo, ...), authentication of the calling party, e.g., recognition of the voice of the calling party, indication of the purposes of the call, indication of urgent or emergency calls, transfer of a real-time short message (text, audio, video, ...) then hang up, whereas a message in e-mail or GSM is not real-time.

[0021] As mentioned, at the destination side the "subject" object can be "displayed" or "rendered" to the called party. The term "display" is used in a very general sense of "processing the content of the object". The outcome of the processing may lead to a call offering (ringing), possibly with some kind of information display, or to a re-direction of the call to another destination, e.g. in a call center case to an agent which is more competent on the subject, but also to the rejection of the call.

[0022] Similar to the "subject" object sent from the calling to the called party, the called party can also send an object to the calling party as an immediate reply to his call, e.g. indicating why he/she cannot answer the call yet, proposing another time for calling him.

[0023] If the call-related information has been defined by a calling person or selected, then the advantage occurs, that a called person knows exactly who is sending the call and can decide whether he/she takes the call or not.

[0024] When the call-related information comprises an indication of the purpose of the session or an indication of the urgency of said session, then the advantage occurs, that the called person knows already the topic of the session and is prepared, or in case of an emergency the called person can handle immediately.

[0025] The call-related information are creatable by identifying the calling person through a sensor, e.g. a voice-analyzer, a scanner, a camera, or the like, which provides a huge variety of creating the call-related information.

[0026] If the call-related information is transformed to a visible, audible, tactile, smellable, or tastable information and is indicated as text, photo, image, graphic, animation, audio clip, video clip, combinations thereof or by initiating a device, then the advantage occurs, that the called person can be informed in different ways. This is especially advantageous for handicapped people.

[0027] When the call-related information is transmitted and the session is afterwards interrupted, then the advantage occurs, that the called person get a real-time information and can react immediately.

[0028] It is advantageous if the call-related information is transmitted during the establishment of a communication session, because the call-related information can be displayed, rendered, signaled, or outputted before the communication starts.

[0029] If the call-related information is processed by a called device to make a decision on the handling of

the call, then the advantage occurs, that in a call center case, i.e. the called device belongs to a service station, the call-related information can be handled and processed in a more competent way, e.g. rendering only some kind of information, transforming the call-related information, routing the call to another destination, or even rejecting the call.

DESCRIPTION OF THE DRAWINGS

[0030] The invention is described in detail below with reference to the following schematic drawings.

FIG. 1 shows a schematic illustration of an application according to the present invention where a person sends call-related information to another person.

[0031] All the figures are for the sake of clarity not shown in real dimensions, nor are the relations between the dimensions shown in a realistic scale.

DETAILED DESCRIPTION OF THE INVENTION

[0032] In the following an exemplary implementation of the present invention is described in connection with Figure 1.

[0033] Figure 1 shows a stepwise schematic illustration of an establishment of a telephone call 9 where a calling person 1 sends a call-related information 3 to a called person 2. The first step, indicated by 1., depicts the calling person 1, a calling device 7 that comprises a sensor 4 and on the other hand the called person 2, a called device 8 that comprises an output unit 5. The calling device 7 is connected to a network 6, which can be any kind of network, e.g. a telephone network, an Intranet, or even the Internet. The called device 8 is also connected to the network 6.

[0034] In the following the calling device 7 and the called device 8 is addressed in more detail.

[0035] First, the calling device 7 is an ISDN telephone with extended features. That means the device 7 includes a microphone with a digital recorder in order to record audio signals. That telephone might comprise further sensors 4, for instance, a voice-analyzer, a camera, a bar-code reader, a keyboard, a notepad, a scanner, a device for the identification of a person, a place, an environment, or even a scent. For the purpose of the invention, with a call-related information 3 is meant any kind of information that can be outputted or displayed to the called person 2 in form of text, speech, music, jingle, picture, image, animation, graphic, video and the like. The term "displayed" is here used in a very general sense of "processing the information". The outcome of the processing may lead to a call offering, possibly with some kind of information display, or to a re-direction of the call to another destination. The call-related information 3 can be stored as data. These data can be com-

pressed and therewith the call-related information 3 can be sent in a signaling message, e.g. implemented in the SETUP message in Q.931-based systems. Further, the calling device 7 can be a computer, a multimedia computer or device, an embedded device, or any other kind of device that is able to handle a communication session. This session is establishable via the Internet by using IP (Internet protocol) packets. The IP telephony uses the standard H.323 where user-to-user information can be sent in an easy and efficient way. Another advantage of IP is that any data format can be sent within the packets and that therefore the call-related information 3 can be easily retrieved when it is referenced by an URL.

[0036] The standards Q.931 and H.323 are incorporated by reference in their entirety.

[0037] Second, the called device 8 is a device having the features or parts of device 7 as described above. The called device 8 further comprises the output unit 5 which can be a speaker, a sound-system, a monitor, a display, a screen, a printer, a device for rerouting the call-related information 3, or any other device that is able to output or display the call-related information 3 to the called person 2.

[0038] Turning now to Figure 1 in the first step where a call-related information 3 is created. At first, the calling person 1 speaks a call-related sentence and shows a call-related document to the calling device 7. For the sake of simplicity, the calling device 7 is depicted as advanced telephone set having the features as described above. The sensor 4 that here is a microphone 4a coupled to a voice-analyzer and a snapshot camera 4b, records the sentence and take a picture of the document. This call-related information 3 is digitized and provided as data.

[0039] Then the calling person 1 starts the establishment of the telephone call 9 by pressing a button as indicated in the second line in step 2.. For the sake of simplicity, in step 2. as well as in the next following steps the structure and therefore the numbering is the same as described and depicted above. The call-related information 3 is implemented and sent to the network 6 in a SETUP message 10 in the case of using ISDN and the standard Q.931. When using IP and H.323 then the call-related information 3 can be implemented and sent to the network 6 in a SETUP message.

[0040] In the next step, step 3., the SETUP message 10 with the call-related information 3 is routed through the network 6 and has not arrived yet at the called device 8.

[0041] Step 4., where the call-related information 3 has passed the network 6, shows the outputting of an alerting signal 11 containing the call-related sentence to the called person 2 by using the output unit 5 which in this case is a speaker 5a. Furthermore, the call-related document is shown in a display 5b. At this point in time the called person 2 is informed already by the outputted voice and the displayed document about the importance

of the call. Hence, people can react much faster to the content of a call and do not need time-wasting explanations. In case of a played music or jingle, the calling person and the relevance of the call might be recognized by one called person if many people are in the proximity of the output of the call-related information 3.

[0042] Finally, step 5. indicates that the calling device 7 and the called device 8 are connected via the network 6 and hence the calling person 1 and the called person 2 engaged in conversation. The telephone call 9 is established, the status of the telephone call 9 is CONNECT, and the communication via the network 6 starts. The called person 2 is now informed about the topic of the call in advance and sees the displayed document on the display 5b.

[0043] Some or all aspects of the present invention can be realized in hardware, software, or a combination of hardware and software. When realized as software, this software when executed by a processor of the calling device 7 or the called device 8 controls the respective system such that it performs the present method.

Claims

1. Method of setting up a communication session (9) between a calling person (1) and a called person (2), characterized in that call-related information (3) which has been determined by said calling person (1) and which is related to said calling person (1) or the subject of said session (9), is transmitted to said called person (2) and output there by use of an output device (5), while alerting said called person (2) that a call is incoming.
2. Method according to claim 1, characterized in that the communication session (9) is a telephone call, a text-chat call, or a video conference call.
3. Method according to claim 1, characterized in that the call-related information (3) has been defined by the calling person (1) or selected, for example, from a repository.
4. Method according to claim 1, characterized in that the call-related information (3) comprises an indication of the calling person (1), an indication of the purpose of the call or an indication of the urgency of said call.
5. Method according to claim 1, characterized in that the call-related information (3) has been defined by identifying the calling person (1) through a sensor (4), e.g. a voice-analyzer, a scanner, a camera, or the like.
6. Method according to claim 1, characterized in that the call-related information (3) is indicated as text, photo, image, graphic, animation, audio clip, video

clip, and the like, or any combinations thereof.

7. Method according to claim 1, characterized in that the call-related information (3) is transmitted and the session (9) is afterwards interrupted.
8. Method according to claim 1, characterized in that the call-related information (3) is transformed to a visible, audible, tactile, smellable, or tastable information.
9. Method according to claim 1, characterized in that the call-related information (3) is transmitted during the establishment of the session (9).
10. Method according to claim 1, characterized in that an alerting signal (11) is provided to the called person (2) to indicate that a call is incoming, and wherein said alerting signal (11) is represented by the call-related information (3) itself.
11. Method according to claim 1, characterized in that the call-related information (3) is processed by a called device (8) to make a decision on the handling of the session (9).
12. Apparatus (7) for setting up a communication session (9) with a called device (8), whereby call-related information (3) is generatable or selectable, said call-related information (3) being related to a calling person (1) or the subject of said session (9), comprising
 - a connection to a network (6) and a unit for enabling said session (9),
 - a unit (4) for generating or selecting said call-related information (3),
 - a unit for processing said call-related information (3), and
 - a transmitter for transmitting said call-related information (3) via said network (6) to said called device (8).
13. Apparatus (8) for establishing a communication session (9) with a calling device (7), whereby call-related information (3) is transmitted, said call-related information (3) is related to the calling person (1) or the subject of said session (9), comprising
 - a connection to a network (6) and a unit for enabling said session (9),
 - a receiver for receiving said call-related information (3), and

a unit (5) for processing and outputting said call-related information (3).

14. A communication system for setting up a communication session (9) and transmitting call-related information (3) between a calling device (7) and a called device (8), whereby

said calling device (7) comprises a connection to a network (6) and a unit for enabling said communication session (9), a unit (4) for generating or selecting said call-related information (3), a unit for processing said call-related information (3), and a transmitter for transmitting said call-related information (3) via said network (6), and

said called device (8) comprises a connection to said network (6) and a unit for enabling said session (9), a receiver for receiving said call-related information (3), and a unit (5) for processing and outputting said call-related information (3).

15. The apparatus according to claim 12, characterized in that the call-related information (3) is recordable through a microphone, a voice-analyzer, a scanner, a camera, a keyboard, a note pad, or the like, or is selectable in form of a provided file.

16. The apparatus according to claim 13, characterized in that the call-related information (3) is outputable by a speaker, a display, a screen, a printer, or a signalizing device such as a lamp or LED, or a combination thereof.

17. The communication system according to claim 14, characterized in that the call-related information (3) is transmitted during the establishment of the communication session (9).

18. A computer program product comprising machine readable code which, when being executed by a processor of a calling device (7) causes the following steps to be performed

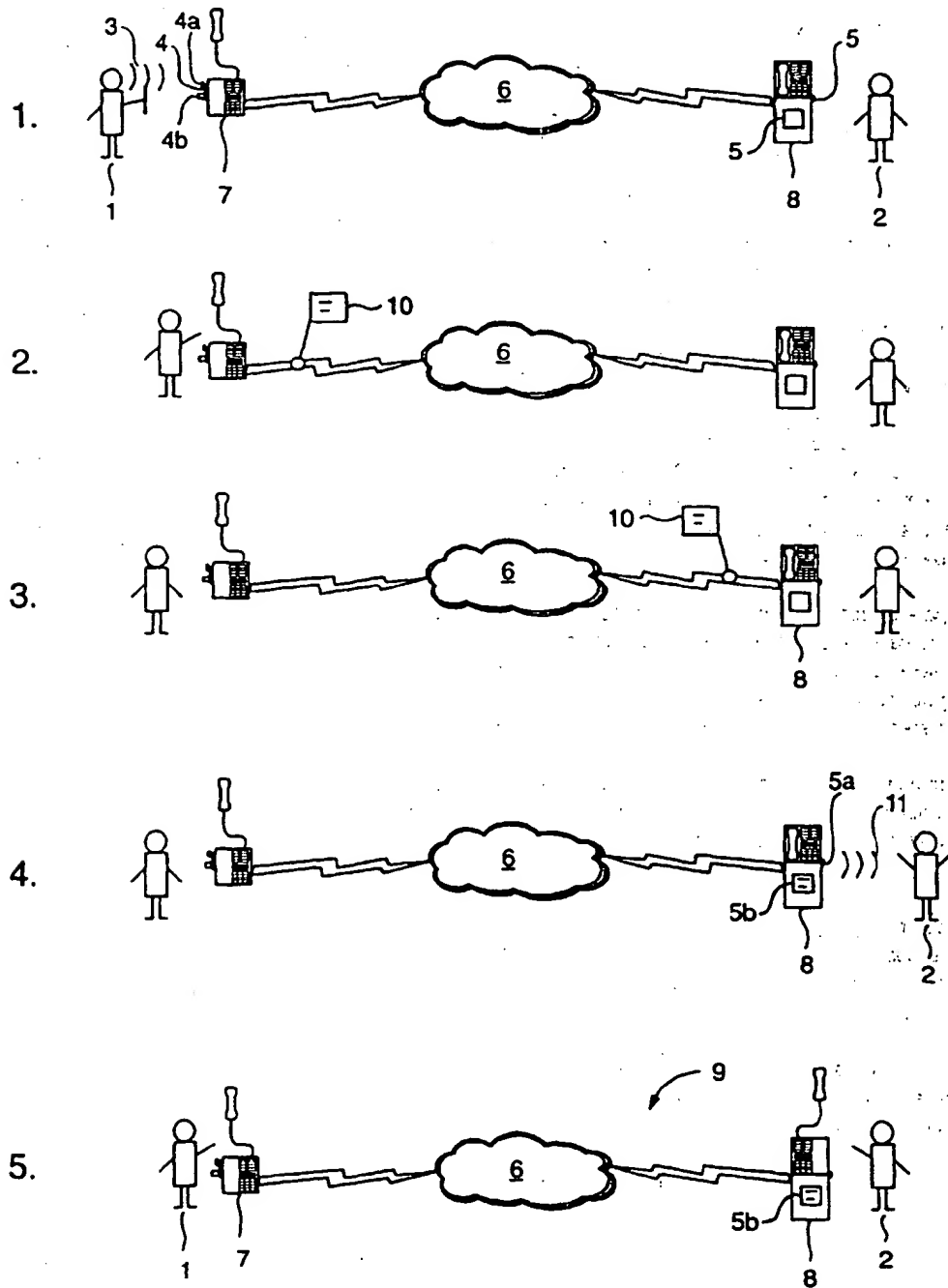
- setting up a communication session (9) between said calling device (7) and a called device (8),
- creating or selecting call-related information (3) which relates to said calling device's user (1) or the subject of said session (9), and
- transmitting said call-related information (3) via a network (6) to said called device (8).

19. A computer program product comprising machine

readable code which, when being executed by a processor of a called device (8) causes the following steps to be performed

- setting up a communication session (9) between a calling device (7) and said called device (8),
- receiving call-related information (3) via a network (6) from said calling device (7), said call-related information (3) relating to said calling device's user (1) or the subject of said session (9), and
- outputting said call-related information (3).

Fig. 1





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 99 10 1918

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X	EP 0 844 773 A (CYBIOTRONICS INC) 27 May 1998 * page 7, line 45 - line 54 * * page 8, line 39 - line 51 * * page 9, line 54 - page 10, line 2 * * page 10, line 53 - page 11, line 8 *	1-4, 6-11	H04M1/00 H04Q11/04 H04M1/57
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 June 1999	Examiner Schweitz, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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